RIPARIAN AREAS

IPARIAN AREAS:
AN UNDERVALUED
SASKATCHEWAN
RESOURCE

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AQUATIC ZONE
Plants growing in water

RIPARIAN ZONE
Moisture-loving plants

UPLAND ZONE
Drought-tolerant plants

Illustration by Cindy Romo, Audio Visual Services, University of Saskatchewan

WHAT IS A RIPARIAN AREA?

Riparian areas are the lushly vegetated zones in coulees and alongside rivers, creeks, lakes, sloughs, potholes, hay meadows and springs. In Saskatchewan's prairie and parkland regions the increased moisture found in these areas produces unique plant communities that differ noticeably from surrounding crop and pasture land.

The province's riparian areas naturally support a dense growth of moisture-loving grasses and shrubs such as willow, wild rose, Saskatoon and chokecherry. Trees commonly found in riparian areas are Manitoba maple, green ash, cottonwood, trembling aspen and balsam poplar.

Although riparian zones often represent only a small percentage of the land in a watershed, they are vitally important because of the diversity of plants and animals they support. Riparian areas are considered among the most productive ecosystems in the world.

PROPER MANAGEMENT YIELDS MANY BENEFITS

The sign of a healthy riparian area is dense, thick vegetation. This is achieved through good management of the entire area.

Effective riparian management produces a range of environmental and economic benefits.

ENVIRONMENTAL BENEFITS

Properly managed riparian areas support dense vegetation which:

- *Controls shoreline erosion.* The root systems of riparian vegetation stabilize soil along the shorelines of rivers, creeks, lakes, sloughs and potholes. This vegetation minimizes shoreline erosion damage caused by ice scouring and fast-flowing flood waters.

- *Maintains water quality.* Dense vegetation filters soil particles, agricultural chemicals, and organic or commercial fertilizers from farmland run-off water. Riparian plant communities bordering streams and rivers shade the water, decreasing temperature and increasing water purity by inhibiting algae growth.

- *Reduces flood peaks/ recharges groundwater.* Dense vegetation traps snow during the winter. In spring the snow, shaded by riparian vegetation, melts slowly, increasing the amount of water that soaks into the soil. This slow melt enhances surface moisture and replenishes groundwater reserves, while reducing erosion damage caused by flooding.

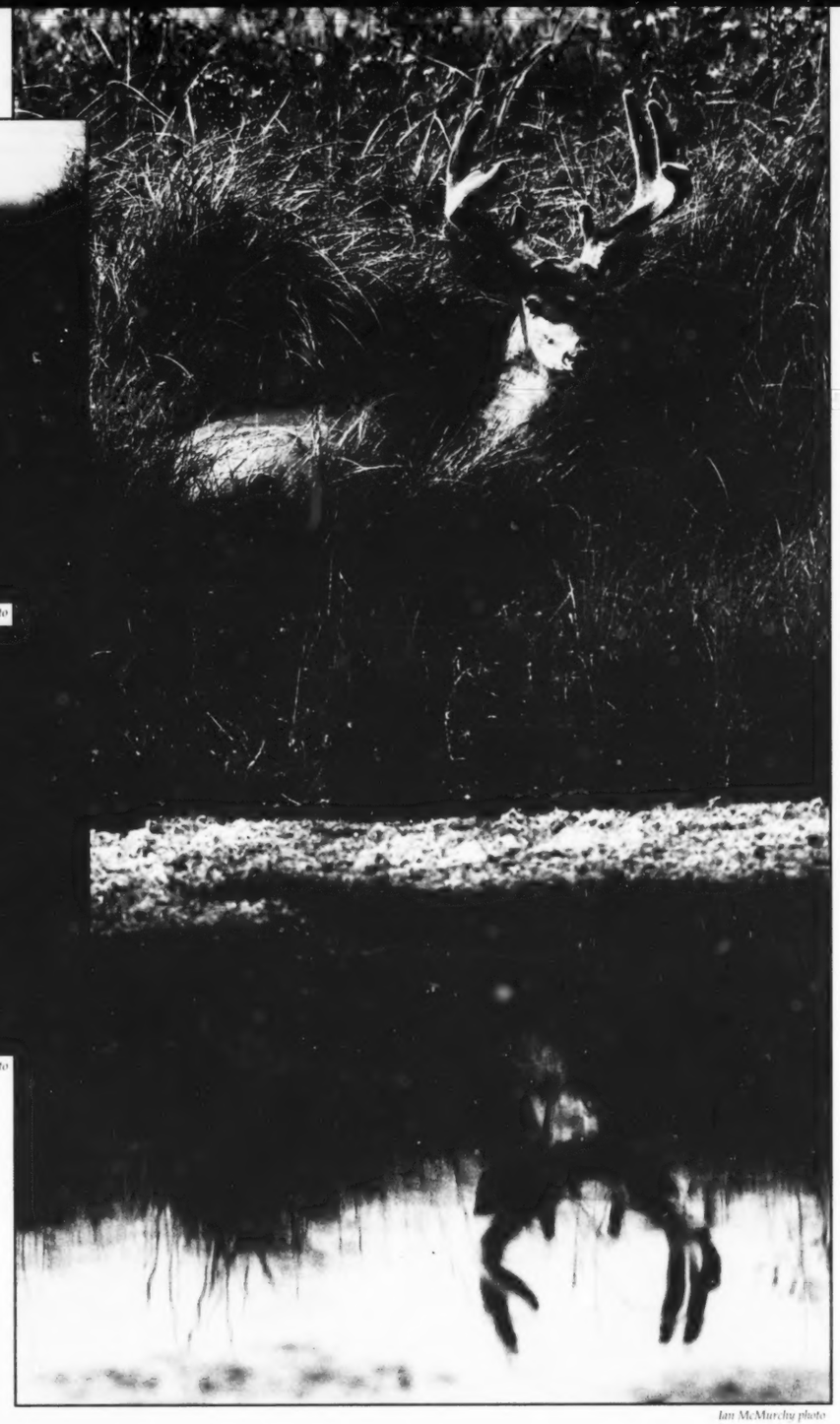
A degraded riparian area. The channel is downcut and banks are near vertical. There is little riparian vegetation to protect stream banks against further erosion or to slow run-off and reduce transportation of sediment downstream.

PFRA photo

Jim Romo photo

Properly managed riparian vegetation reduces the speed of water flow, allowing more water to enter the soil and move down into groundwater storage.

SPRR photo



Ian McMurchy photo

Healthy riparian areas provide essential habitat for the survival of many wildlife species, large and small.

- *Provides wildlife/fish habitat.* Dense vegetation is very important to many species of wildlife. They come for water, food, cover and relief from weather extremes.

  Riparian areas provide critical habitat for deer, moose, elk and pronghorn antelope. The dense trees and shrubs shelter pathways used by these animals as they move to other habitats.

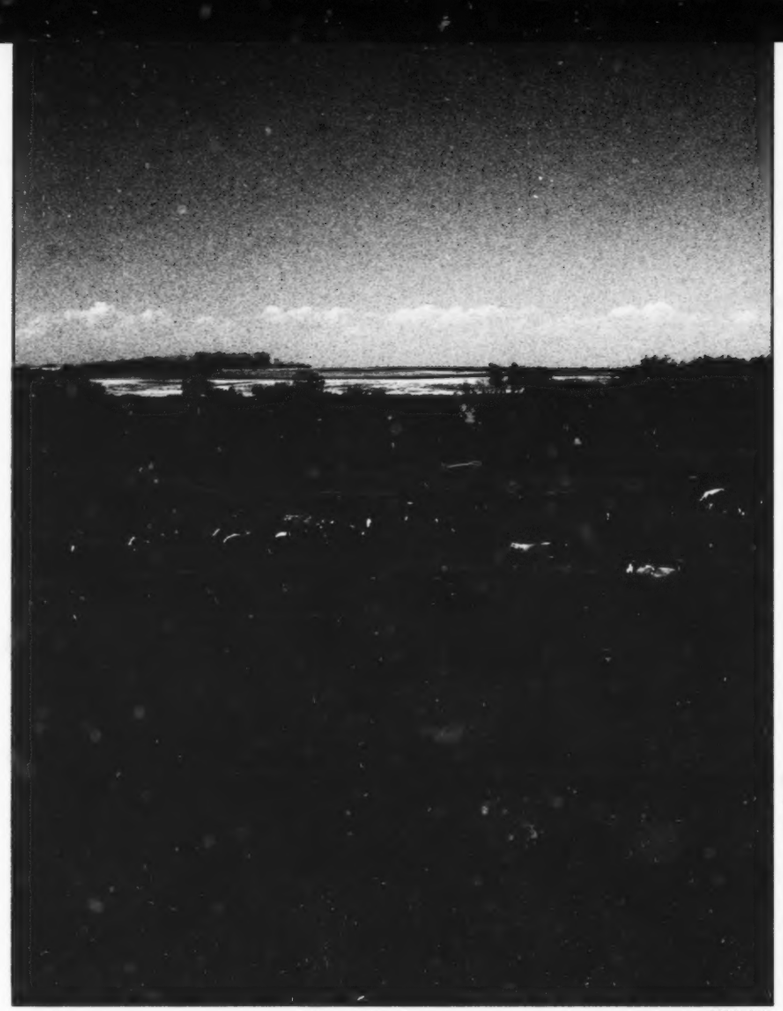
  Many of Saskatchewan's birds depend on riparian habitats during some period in their life cycle.

  Fish depend on healthy riparian conditions. Dense vegetation filters agricultural run-off, resulting in pure, clear water. Water of this quality is necessary to support the plant and insect life that many aquatic animals, such as fish, turtles and frogs, require for food and cover.

ECONOMIC BENEFITS

The following benefits are realized in properly managed riparian areas.

- *Livestock production.* Within a planned grazing system, riparian areas can provide a reliable supply of quality forage and shelter animals during weather extremes.
- *Crop production.* Riparian areas recharge groundwater reserves that can benefit annual crops and forages throughout the growing season.
- *Water supply.* Recharged groundwater reserves maintain water levels in dugouts and wells used by livestock and people.
- *Timber harvesting.* Riparian areas can provide a sustainable supply of wood for use as fuel or lumber.
- *Trapping.* Riparian areas are attractive habitat for many fur-bearing species of wildlife, including beaver, mink, muskrat and raccoon.
- *Tourism/recreation.* Popular recreation sites for picnicking, camping, hunting, fishing and wildlife watching are provided.
- *Real estate.* Riparian areas offer premium living conditions for people who enjoy the close proximity of lush vegetation, natural water and wildlife.



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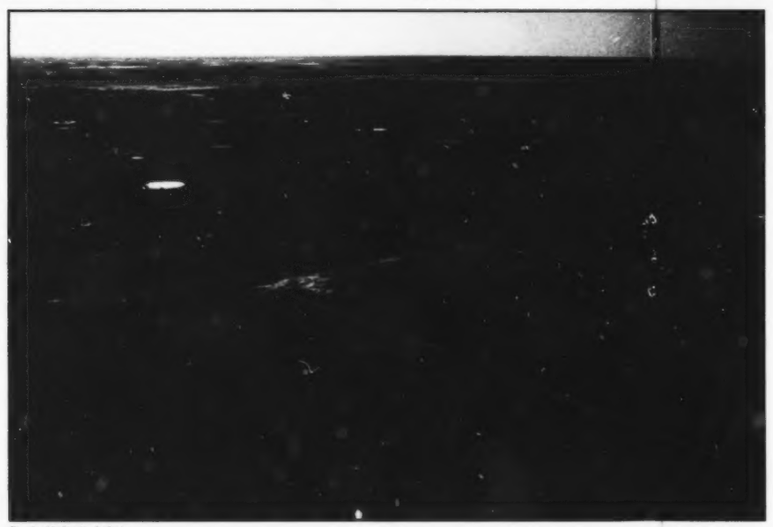
Controlling the season, duration and intensity of grazing can maintain healthy riparian areas and improve livestock production.



Ducks Unlimited photo

Duane McCartney photo

Healthy riparian areas provide ideal recreational opportunities for exploring the natural world.

SPRR photo

THE PROBLEM OF DECLINING PRODUCTIVITY

Cause
Intensive cropping practices, overgrazing by livestock, channelization and clearing of rivers and creeks, timber harvesting, sand and gravel removal, and harmful recreation activities destroy the dense vegetation in riparian areas.

Effect
Loss of riparian vegetation results in environmental consequences that reduce potential economic benefits derived from properly managed riparian areas.

Practices to Avoid
- Indiscriminate burning and/or removal of riparian shrubs, trees and other vegetation reduce shoreline soil stability, increase water erosion and decrease groundwater storage.

- Channelization and brush clearing along creeks and rivers increases the speed of water flow, causing erosion and flooding which can severely damage upstream and downstream property.

- Destroying riparian areas by cultivating to the edge of creeks, sloughs and potholes removes important vegetation, increasing the volume of contaminated agricultural run-off reaching dugouts, ponds and groundwater reserves.

Ducks Unlimited photo

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Improper livestock grazing can result in permanent changes in the landscape and loss of long-term productivity.

- Cultivating temporary water-runs in crop land causes severe soil erosion, reducing long-term productivity. Water-eroded soil is often carried into streams and sloughs, lowering water quality.

- Concentrating livestock in riparian areas for long periods results in overgrazing that reduces forage productivity and encourages expansion by unpalatable plant species. This increases erosion potential and lowers water quality.

- Activities using heavy equipment, such as road construction, agricultural production or timber harvesting, compact riparian soils and damage shorelines. Recreational all-terrain vehicles cause similar impacts.

Removing or altering vegetation exposes areas of bare ground, increasing the potential for erosion. Water runs off the surface before it has an opportunity to soak into the soil.

SSCA photo

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Excessive tillage of cropland greatly increases the risk of wind and water erosion. This lowers soil fertility and contaminates surface and groundwater supplies with soil and agricultural chemicals.

MAINTAINING AND IMPROVING RIPARIAN PRODUCTIVITY

Riparian areas, with their unique plant communities, differ noticeably from surrounding crop and pasture lands. Proper land management recognizes and maintains this difference so benefits can be realized.

Every deteriorated riparian area can be rehabilitated. The various restoration methods include:

- Monitoring the impacts of land use on riparian areas to detect potential problem areas before expensive damage and property losses occur.
- Protecting or establishing shrubs, trees, grass or other vegetation in riparian areas to help prevent shoreline erosion and filter agricultural run-off before it contaminates water bodies.
- Establishing and maintaining perennial grasses on temporary water-runs in crop land helps to eliminate water erosion and minimize the volume of agricultural run-off reaching streams and ponds.
- Integrate riparian areas into planned grazing systems to ensure that the growth requirements of riparian vegetation are recognized. For example:
  — riparian areas are best suited for grazing when soils are dry.
  — riparian and upland vegetation may not grow at the same rate, so monitor the growth rate of both to control grazing and rest cycles in pastures.
  — develop water sources, supplementary feeding sites and salting areas in upland pasture to promote improved grazing distribution and reduce prolonged use of riparian areas.
  — assess forage plant condition and utilization, trampling impacts and condition of woody plants in evaluating the effectiveness of grazing practices.
  — evaluate the cost/benefit of using fencing to separate riparian areas from upland pasture to ensure that riparian plant communities receive adequate time for vegetation regrowth between grazing events.
- Constructing instream drop structures, vegetation riprap and deflectors within stream channels to slow water velocity and minimize erosion damage.
- Constructing only necessary roads with proper crowning and culverts to reduce soil erosion and silt buildup.

Agricultural management must consider both riparian and upland vegetation.

Jim Ross photo

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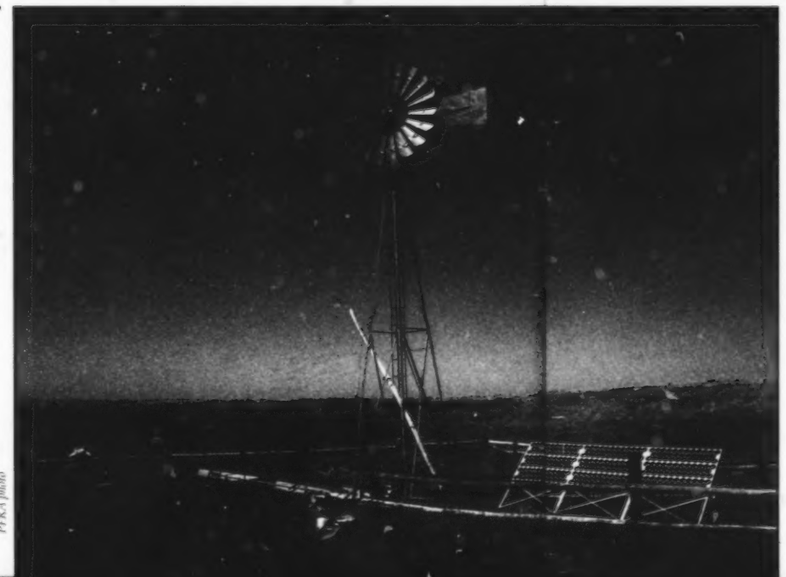
Natural water-courses that are cultivated are erosion prone. Grassed waterways are broad, shallow channels, seeded to perennial forages that carry surface run-off with a minimum of erosion.

Using solar power to pump water into troughs is a cost-effective method of protecting riparian areas and maintaining water quality while allowing livestock access to water.



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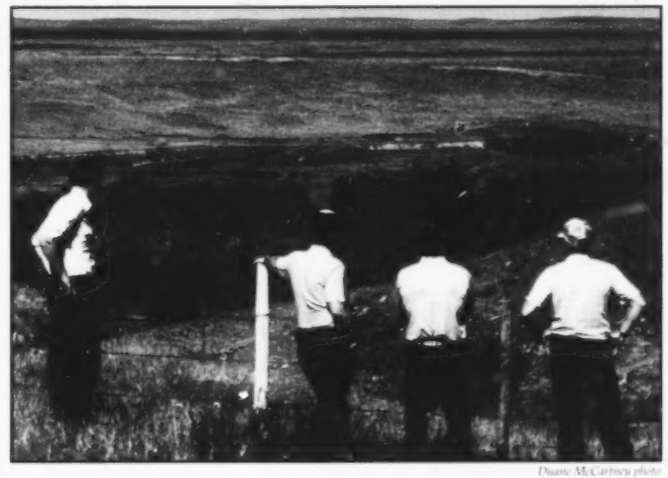

Duane McCartney photo

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